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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,226	04/01/2002	Eddy Benjamin Boskamp	121063	9512

23413 7590 09/13/2005

CANTOR COLBURN, LLP
55 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

EXAMINER	
ROY, BAISAKHI	

ART UNIT	PAPER NUMBER
3737	

DATE MAILED: 09/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/063,226	BOSKAMP ET AL.	
	Examiner	Art Unit	
	Baisakhi Roy	3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, 4, 5, 11-13, 15-18, 20-23, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gonzalez Ballester et al. (2004/0070394) in view of Visser et al. (2002/0125888). Gonzalez Ballester et al. disclose a whole body magnetic resonance imaging method and system with a magnet assembly to generate a magnetic field, apply gradient waveforms to the magnetic field, applying RF energy with a radio frequency transceiver system which further comprises a multiple channel array coil configured for sensitivity encoding imaging techniques (abstract, [0014-0015] [0018] [0021]). The reference teaches said multiple channel array coil to configured into a cylindrical structure [0047] for imaging different regions of the body with said cylindrical structure comprising of a plurality of individual coil elements that are spaced apart from each other in a non-overlapping configuration [0053] [0068] [0071] [0074-0076] [0112] [0155] [0162]). Gonzalez Ballester et al. however do not explicitly teach said coil to have a cylindrically tapered head portion. In the same field of endeavor, Visser et al.

disclose a method and apparatus for implementing sensitivity encoding for MRI with the use of a multiple channel array coil having a cylindrically tapered head portion (fig. 5, 6, [0013-0017] [0031-0037]). Visser et al. further teach said array coil to comprise of 8 individual coil elements ([0015] [0031] [0037-0041]). Visser et al. teach using a preamplifier to isolate the next-nearest neighbor coil elements ([0031-0033]). With reference to the superior end of the head portion having a small diameter than the inferior end, Visser et al. teach the coils to be arranged according to the dimension of the body structure ([0031]). It would have therefore been obvious to one of ordinary skill in the art to use the head coil configuration teaching by Visser et al. to modify the teaching by Gonzalez Ballester et al. for the purpose of imaging employing a multiple channel array coil configuration to enable increased SNR.

4. Claims 6, 7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gonzalez Ballester et al. as set forth above, and further in view of Chan et al. (6577888). Gonzalez Ballester et al. disclose a whole body magnetic resonance imaging method and system with a multiple channel array coil configured for sensitivity encoding imaging techniques (abstract, [0014-0015] [0018] [0021]). The reference teaches said multiple channel array coil to configured into a cylindrical structure [0047] for imaging different regions of the body with said cylindrical structure comprising of a plurality of individual coil elements that are spaced apart from each other in a non-overlapping configuration [0053] [0068] [0071] [0074-0076] [0112] [0155] [0162]). Gonzalez Ballester et al. however do not explicitly teach said coil to have a cylindrically tapered head portion. In the same field of endeavor, Visser et al. disclose a

method and apparatus for implementing sensitivity encoding for MRI with the use of a multiple channel array coil having a cylindrically tapered head portion (fig. 5, 6, [0013-0017] [0031-0037]). Visser et al. further teach said array coil to comprise of 8 individual coil elements ([0015] [0031] [0037-0041]). Visser et al. teach using a preamplifier to isolate the next-nearest neighbor coil elements ([0031-0033]). It would have therefore been obvious to one of ordinary skill in the art to use the head coil configuration teaching by Visser et al. to modify the teaching by Gonzalez Ballester et al. for the purpose of employing a multiple channel array coil configuration to enable increased SNR. Gonzalez Ballester et al. and Visser et al. do not explicitly teach a hinge assembly. In the same field of endeavor, Chan et al. disclose a cylindrically shaped head and chest coil assembly with a hinge mechanism or joint (col. 5 lines 17-40). It would have therefore been obvious to one of ordinary skill in the art to use the hinge assembly teaching by Chan et al. to modify the teaching by Gonzalez Ballester et al. and Visser et al. for the purpose of allowing movement of the anterior torso coil in the vertical direction and rotated in about the left-right axis.

5. Claims 3, 14, 19, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gonzalez Ballester et al. in view of Visser et al. as set forth above, and further in view of Kyriakos et al. (6680610). Gonzalez Ballester et al. and Visser et al. do not explicitly teach the use of transformer decoupling. In the same field of endeavor, Kyriakos et al. disclose a MRI method and system based on parallel imaging with decoupling of the coils in the array(col. 13 lines 35-40). It would have therefore been obvious to one of ordinary skill in the art to use the decoupling teaching by

Kyriakos et al. to modify the teaching by Gonzalez Ballester et al. and Visser et al. for the purpose of making it easier to design and execute arrays containing large number of coils.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gonzalez Ballester et al. in view of Visser et al. in view of Chan et al. as set forth above, and further in view of Kyriakos et al. Gonzalez Ballester et al., Visser et al., and Chan et al. do not explicitly teach the use of transformer decoupling. In the same field of endeavor, Kyriakos et al. disclose a MRI method and system based on parallel imaging with decoupling of the coils in the array (col. 13 lines 35-40). It would have therefore been obvious to one of ordinary skill in the art to use the decoupling teaching by Kyriakos et al. to modify the teaching by Gonzalez Ballester et al., Visser et al., and Chan et al. for the purpose of making it easier to design and execute arrays containing large number of coils.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Baisakhi Roy whose telephone number is 571-272-7139. The examiner can normally be reached on M-F (7:30 a.m. - 4p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian L. Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

B.R.

BR

BRIAN L. CASLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700